

(b) *Backtesting.* A Board-regulated institution must compare each of its most recent 250 business days' trading losses (excluding fees, commissions, reserves, net interest income, and intraday trading) with the corresponding daily VaR-based measures calibrated to a one-day holding period and at a one-tail, 99.0 percent confidence level. A Board-regulated institution must begin backtesting as required by this paragraph (b) no later than one year after the later of January 1, 2014 and the date on which the Board-regulated institution becomes subject to this subpart. In the interim, consistent with safety and soundness principles, a Board-regulated institution subject to this subpart as of January 1, 2014 should continue to follow backtesting procedures in accordance with the Board's supervisory expectations.

(1) Once each quarter, the Board-regulated institution must identify the number of exceptions (that is, the number of business days for which the actual daily net trading loss, if any, exceeds the corresponding daily VaR-based measure) that have occurred over the preceding 250 business days.

(2) A Board-regulated institution must use the multiplication factor in Table 1 to § 217.204 that corresponds to the number of exceptions identified in paragraph (b)(1) of this section to determine its VaR-based capital requirement for market risk under paragraph (a)(2)(i) of this section and to determine its stressed VaR-based capital requirement for market risk under paragraph (a)(2)(ii) of this section until it obtains the next quarter's backtesting results, unless the Board notifies the Board-regulated institution in writing that a different adjustment or other action is appropriate.

TABLE 1 TO § 217.204—MULTIPLICATION FACTORS BASED ON RESULTS OF BACKTESTING

Number of exceptions	Multiplication factor
4 or fewer .....	3.00
5 .....	3.40
6 .....	3.50
7 .....	3.65
8 .....	3.75
9 .....	3.85
10 or more .....	4.00

#### § 217.205 VaR-based measure.

(a) *General requirement.* A Board-regulated institution must use one or more internal models to calculate daily a VaR-based measure of the general market risk of all covered positions. The daily VaR-based measure also may reflect the Board-regulated institution's specific risk for one or more portfolios of debt and equity positions, if the internal models meet the requirements of paragraph (b)(1) of § 217.207. The daily VaR-based measure must also reflect the Board-regulated institution's specific risk for any portfolio of correlation trading positions that is modeled under § 217.209. A Board-regulated institution may elect to include term repo-style transactions in its VaR-based measure, provided that the Board-regulated institution includes all such term repo-style transactions consistently over time.

(1) The Board-regulated institution's internal models for calculating its VaR-based measure must use risk factors sufficient to measure the market risk inherent in all covered positions. The market risk categories must include, as appropriate, interest rate risk, credit spread risk, equity price risk, foreign exchange risk, and commodity price risk. For material positions in the major currencies and markets, modeling techniques must incorporate enough segments of the yield curve—in no case less than six—to capture differences in volatility and less than perfect correlation of rates along the yield curve.

(2) The VaR-based measure may incorporate empirical correlations within and across risk categories, provided the Board-regulated institution validates and demonstrates the reasonableness of its process for measuring correlations. If the VaR-based measure does not incorporate empirical correlations across risk categories, the Board-regulated institution must add the separate measures from its internal models used to calculate the VaR-based measure for the appropriate market risk categories (interest rate risk, credit spread risk, equity price risk, foreign exchange rate risk, and/or commodity price risk) to determine its aggregate VaR-based measure.

(3) The VaR-based measure must include the risks arising from the non-linear price characteristics of options positions or positions with embedded optionality and the sensitivity of the fair value of the positions to changes in the volatility of the underlying rates, prices, or other material risk factors. A Board-regulated institution with a large or complex options portfolio must measure the volatility of options positions or positions with embedded optionality by different maturities and/or strike prices, where material.

(4) The Board-regulated institution must be able to justify to the satisfaction of the Board the omission of any risk factors from the calculation of its VaR-based measure that the Board-regulated institution uses in its pricing models.

(5) The Board-regulated institution must demonstrate to the satisfaction of the Board the appropriateness of any proxies used to capture the risks of the Board-regulated institution's actual positions for which such proxies are used.

(b) *Quantitative requirements for VaR-based measure.* (1) The VaR-based measure must be calculated on a daily basis using a one-tail, 99.0 percent confidence level, and a holding period equivalent to a 10-business-day movement in underlying risk factors, such as rates, spreads, and prices. To calculate VaR-based measures using a 10-business-day holding period, the Board-regulated institution may calculate 10-business-day measures directly or may convert VaR-based measures using holding periods other than 10 business days to the equivalent of a 10-business-day holding period. A Board-regulated institution that converts its VaR-based measure in such a manner must be able to justify the reasonableness of its approach to the satisfaction of the Board.

(2) The VaR-based measure must be based on a historical observation period of at least one year. Data used to determine the VaR-based measure must be relevant to the Board-regulated institution's actual exposures and of sufficient quality to support the calculation of risk-based capital requirements. The Board-regulated institution must update data sets at least monthly or more frequently as changes

in market conditions or portfolio composition warrant. For a Board-regulated institution that uses a weighting scheme or other method for the historical observation period, the Board-regulated institution must either:

(i) Use an effective observation period of at least one year in which the average time lag of the observations is at least six months; or

(ii) Demonstrate to the Board that its weighting scheme is more effective than a weighting scheme with an average time lag of at least six months representing the volatility of the Board-regulated institution's trading portfolio over a full business cycle. A Board-regulated institution using this option must update its data more frequently than monthly and in a manner appropriate for the type of weighting scheme.

(c) A Board-regulated institution must divide its portfolio into a number of significant subportfolios approved by the Board for subportfolio backtesting purposes. These subportfolios must be sufficient to allow the Board-regulated institution and the Board to assess the adequacy of the VaR model at the risk factor level; the Board will evaluate the appropriateness of these subportfolios relative to the value and composition of the Board-regulated institution's covered positions. The Board-regulated institution must retain and make available to the Board the following information for each subportfolio for each business day over the previous two years (500 business days), with no more than a 60-day lag:

(1) A daily VaR-based measure for the subportfolio calibrated to a one-tail, 99.0 percent confidence level;

(2) The daily profit or loss for the subportfolio (that is, the net change in price of the positions held in the portfolio at the end of the previous business day); and

(3) The p-value of the profit or loss on each day (that is, the probability of observing a profit that is less than, or a loss that is greater than, the amount reported for purposes of paragraph (c)(2) of this section based on the model used to calculate the VaR-based measure described in paragraph (c)(1) of this section).